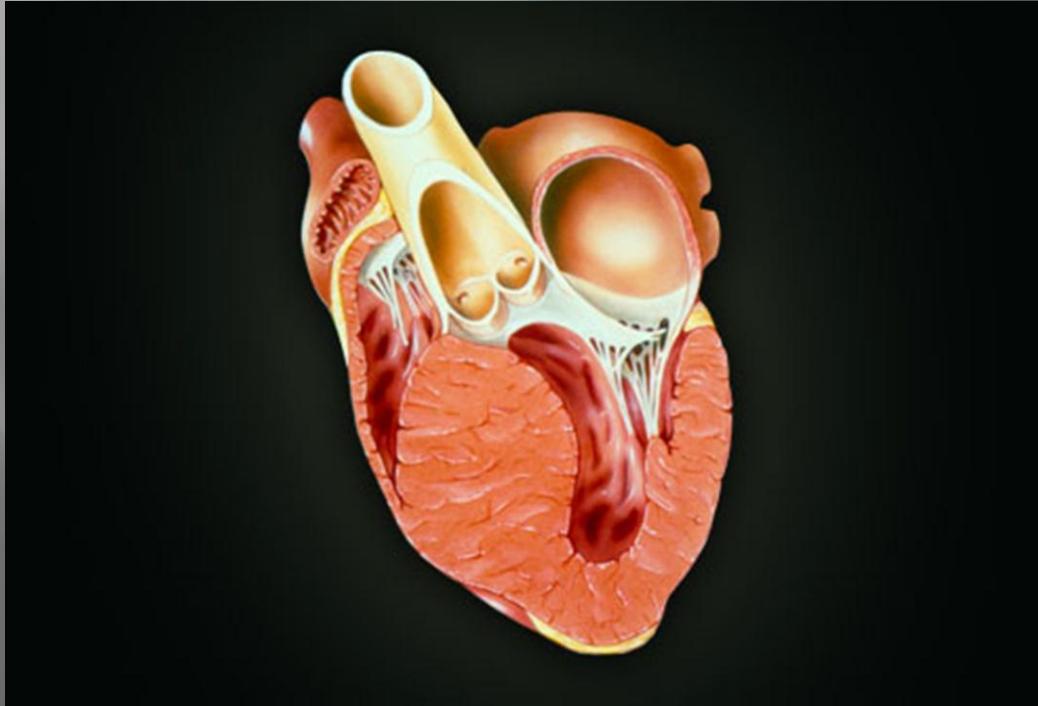


# KWASAKI SYNDROME

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# KWASAKI SYNDROME

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SUBJECT:  
SUBJECT:

CLINICAL BACTERIOLOGY  
CLINICAL BACTERIOLOGY

DISCIPLINE:  
DISCIPLINE:

BS-MICROBIOLOGY  
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DATED: (OCTOBER 22, 2014.)  
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## HISTORY

Kawasaki disease was described by and named after Japanese pediatrician Tomisaku Kawasaki in 1967. It is also called mucocutaneous lymph node syndrome or Kawasaki syndrome.

Although Kawasaki disease was first described in Japan, the disease is found all over the world. It is more common in boys than in girls. The Kawasaki Disease Foundation (KDF) estimates that Kawasaki disease affects more than 4,200 children in the United States each year (KDF). According to a 1999 review published in American Family Physician, it is one of the primary causes of acquired heart disease in children in the United States and other developed countries (Taubert & Shulman, 1999).

## What Is Kawasaki Disease?

Kawasaki disease is a rare but serious illness that causes heart problems in children. It is a form of a condition called vasculitis (inflammation of the blood vessels). The blood vessels include arteries, veins, and capillaries.

Sometimes, the disease affects the coronary arteries that supply oxygenated blood to the heart. If the disease affects the coronary arteries, it can lead to severe heart problems including myocarditis (inflammation of the heart muscle), dysrhythmia (abnormal heart rhythm), and aneurysm (weakening and bulging of the artery wall).

Kawasaki disease is an illness that involves the skin, mouth, and lymph nodes, and most often affects kids under age 5. It can also affect the mucous membranes found inside the nose, throat, and mouth. The cause is unknown, but if the symptoms are recognized early, kids with Kawasaki disease can fully recover within a few days. Untreated, it can lead to serious complications that can affect the heart.

Kawasaki disease can be alarming, but children will usually recover in a few weeks without developing serious heart problems if they are treated early. Relapses are uncommon. However, if the disease is not treated, it may lead to problems with the arteries of the heart and death due to a heart attack.

## Risk Factors

Kawasaki disease affects all ethnicities but is most common in children of Asian descent, Japanese and Korean descent, but can affect all ethnic groups. It is most common in the children under age 5.

## Signs and Symptoms

Kawasaki disease can't be prevented, but usually has telltale symptoms and signs that appear in phases. The first phase, which can last for up to 2 weeks, usually involves a fever that lasts for at least 5 days.

### **Early stages**

Early symptoms may include:

high fever (often greater than 102 degrees and even as high as 104 degrees Fahrenheit) that persists for five or more days

rash

bloodshot eyes (also known as "conjunctivitis without discharge")

swollen, bright red tongue (referred to as a strawberry tongue)

swollen lymph nodes

swollen hands and feet

red palms and soles of the feet

#### Late Stages

Later symptoms may include:

peeling skin on the hands and feet (the skin may come off in sheets)

diarrhea

vomiting

pain in the joints

Other symptoms include:

- ♣ severe redness in the eyes
- ♣ a rash on the stomach, chest, and genitals
- ♣ red, dry, cracked lips
- ♣ swollen tongue with a white coating and big red bumps (called "strawberry tongue")
- ♣ sore, irritated throat
- ♣ swollen palms of the hands
- ♣ soles of the feet with a purple-red color
- ♣ swollen lymph nodes
- ♣ During the second phase, which usually begins within 2 weeks of when the fever started, the skin on the hands and feet may begin to peel in large pieces. This can even happen in children who have already been treated.
- ♣ A child also may have joint pain, diarrhea, vomiting, or abdominal pain.
- ⚠ If your child shows any of these symptoms, call your doctor.

## Causes

The experts don't know what causes the disease. The exact cause of Kawasaki disease is still unknown. Some studies suggest that it may be caused by the immune system's reaction to an infectious agent, such as a virus. The condition itself is not contagious. The disease happens most often in early winter and late spring.

## Complications

Doctors can manage the symptoms of Kawasaki disease if it's caught early. Most kids will feel better within 2 days of starting treatment. Heart problems usually won't develop if Kawasaki disease is treated within 10 days of the start of symptoms.

Untreated cases can lead to more serious complications, such as vasculitis, an inflammation of the blood vessels. This can be particularly dangerous because it can affect the coronary arteries, which supply blood to the heart.

Besides the coronary arteries, the heart muscle, lining, valves, and the outer membrane around the heart can become inflamed. Arrhythmias (changes in the normal pattern of the heartbeat) or abnormal functioning of some heart valves also can occur.

Kawasaki disease leads to serious heart problems in 20 to 25 percent of untreated children according to a review published in American Family Physician (Taubert, et al., 1999).

Inflammation of the arteries may lead to a condition called an aneurysm. An aneurysm is abnormal swelling of a blood vessel, which can lead to blood vessel rupture. Rarely, the vessel will rupture and cause a heart attack, which can be fatal.

## Diagnosis

Kawasaki disease can look similar to other common childhood viral and bacterial illnesses. No single test can detect Kawasaki disease, so doctors usually diagnose it by checking the symptoms and ruling out other conditions.

Most kids diagnosed with Kawasaki disease will have a fever lasting 5 or more days and at least four of these symptoms:

- ♣ redness in both eyes
- ♣ changes around the lips, tongue, or mouth
- ♣ changes in the fingers and toes, such as swelling, color change, or peeling
- ♣ a rash in the chest, stomach, or genital area
- ♣ a large swollen lymph node in the neckred, swollen palms of hands and soles of feet

If Kawasaki disease is suspected, the doctor may order tests to monitor heart function (such as an echocardiogram) and might take blood and urine (pee) samples to rule out other conditions, such as scarlet fever, measles, Rocky Mountain spotted fever, juvenile rheumatoid arthritis, or an allergic drug reaction.

Most children with Kawasaki disease start to get much better after a single treatment with gamma globulin, though sometimes more doses are needed. Most kids recover completely, but some (especially those who develop heart problems after Kawasaki disease) might need further testing and treatments with a cardiologist.

There are no specific tests for Kawasaki disease. A pediatrician will take into account the child's symptoms and rule out illnesses with similar symptoms, such as:

scarlet fever, a bacterial infection that causes fever, chills, and sore throat

juvenile rheumatoid arthritis, a chronic disease that causes joint pain and inflammation

measles

## **Rocky Mountain spotted fever, a tick-borne illness**

Kawasaki disease should be considered a possibility in any infant or child who has a fever lasting more than five days or the other classic symptoms of the disease.

A pediatrician might order additional tests to check how the disease has affected the heart. These may include:

### **Echocardiograph**

An echocardiograph is a painless procedure that uses sound waves to create pictures of the heart and its arteries. This test may need to be repeated to show how Kawasaki disease has affected the heart over time.

### **Blood Tests**

Blood tests may be ordered to rule out other illnesses, to look at white blood cell count (which is likely to be elevated in Kawasaki disease), and to check for anemia (too few red blood cells) and inflammation (indicated by increases in C-reactive protein and erythrocyte sedimentation rate), which are indications of Kawasaki disease.

### **Chest X-ray**

A chest X-ray creates black and white images of the heart and lungs. A doctor may order this test to look for signs of heart failure and inflammation.

### **Electrocardiogram**

An electrocardiogram, or ECG, records the electrical activity of the heart. Irregularities in the ECG may indicate that the heart has been affected by Kawasaki.

### **Treatment**

Treatment should start as soon as possible, ideally within 10 days of when the fever begins. Usually, a child is treated with intravenous (IV) doses of gamma globulin (purified antibodies), an ingredient of blood that helps the body fight infection.

A child also might be given a high dose of aspirin to lower the risk of heart problems. Some kids with Kawasaki disease are put on a low dose of aspirin for a long time to prevent heart problems. It's very important for these children to get their annual flu shot to help prevent viral illnesses while they are taking the aspirin. This is because there's a risk of Reye syndrome, a rare but serious illness, in children who take aspirin during a viral illness. Always talk to your doctor before giving any of your kids aspirin.

Children showing symptoms of Kawasaki should be admitted to the hospital, and treatment should begin immediately to prevent damage to the arteries and heart.

The usual treatment includes high doses of aspirin to decrease inflammation and reduce pain, and a high dose of gamma globulin (an immune protein) given intravenously. Usually, a child will improve within a day.

The child may need to continue to take lower doses of aspirin for six to eight weeks after the fever goes away to prevent the formation of blood clots.

At present, there is no known way to prevent Kawasaki disease.

## **Outlook**

Early diagnosis and treatment typically results in a full recovery. Most children get better within a few weeks. About one percent of patients in the United States will die from complications (Sheinfeld, et al.).

Children who have had Kawasaki disease should receive an echocardiogram every one or two years to screen for heart problems.

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